14202 – Educating the Workforce for Early Integration of ESOH into JCIDS and Systems Engineering

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Purpose

Update attendees on the Defense Safety Oversight Council (DSOC) Acquisition and Technology Programs Task Force (ATP TF) Initiatives to provide improved Environment, Safety, and Occupational Health (ESOH) training to the acquisition workforce through Defense Acquisition University (DAU):

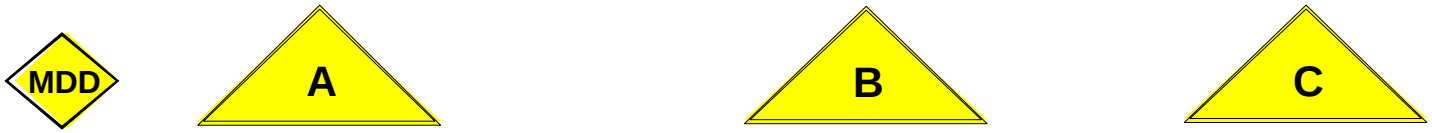
- Continuous Learning Module (CLM) on enhancing ESOH involvement in the Joint Capabilities Integration and Development System (JCIDS) document development process (CLR 030)
- CLM on integrating ESOH into Systems Engineering (CLE 009)
- Improving ESOH content throughout the DAU curricula

- CLE 009 and CLR 030 projects were conducted through the National Defense Center for Energy and Environment (NDCEE) and under the DSOC Program.

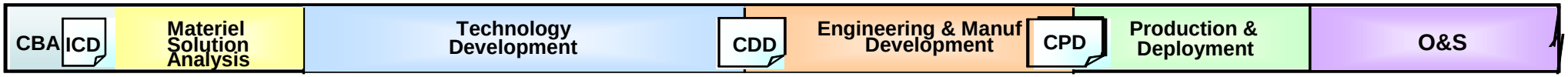
Background

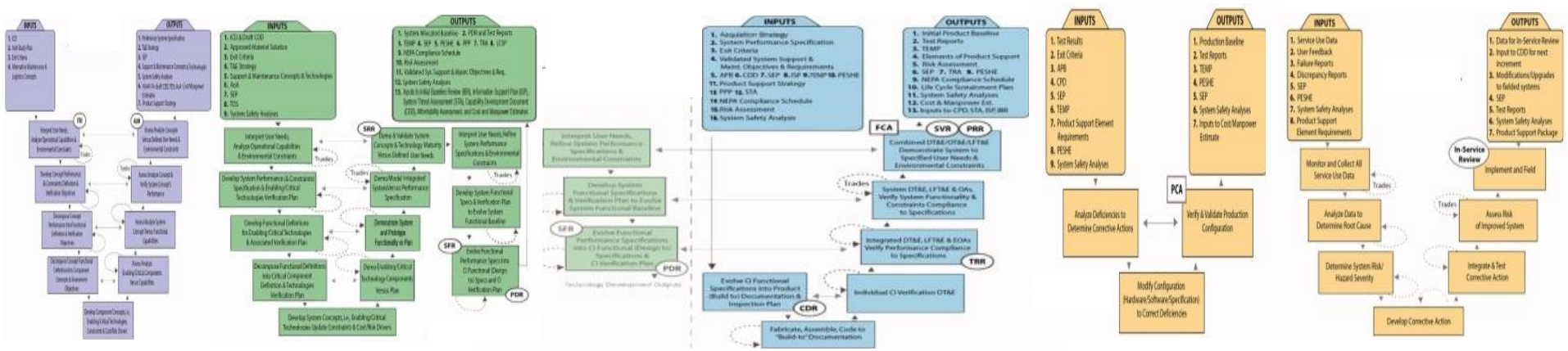
- The Secretary of Defense established the Defense Safety Oversight Council (DSOC) to provide oversight on DoD efforts to reduce preventable mishaps. The NDCEE was tasked with executing DSOC mishap reduction initiatives across the DoD including CLR 030 and CLE 009 through DAU.

Integrating ESOH into Acquisition



CLR 030 ESOH in Joint Capabilities & Integration Development System





CLE 009 ESOH in Systems Engineering

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Background: ESOH in JCIDS Objective

- To be able to successfully influence system design development from ESOH perspective, need to first influence the JCIDS document development process

- Need to have key ESOH requirements captured in the JCIDS documents in terms of "capability statements"
  - Enable program office ESOH staff to trace ESOH technical requirements back to the JCIDS requirements
  - Enhance program office ESOH staff ability to successfully advocate for ESOH considerations in design trade off decisions
  - Link ESOH risk reduction to system cost, schedule, and performance requirements

Training Development

- Effort funded by DSOC through the ATP TF
- ATP TF developed course content by working with the NDIA Systems Engineering Division, ESOH Committee and the DoD Acquisition ESOH IPT, led by DUSD(I&E) and SAF/AQRE, to facilitate industry participation
- Training Purpose: prepare ESOH SMEs to be effective participants in the JCIDS document development process
- Approach: Two Phases
  - Phase 1: Content Development (Sep 2009 - Sep 2010)
  - Phase 2: Production of On-Line Course (Oct 2010 – Mar 2011)

Training Development (con't)

- End State: a Defense Acquisition University (DAU) Continuous Learning Module
- Generic DoD training, not Service-specific
  - Potential for follow-on Service-specific training development
- NDIA Systems Engineering Division ESOH Committee sponsored three workshops to develop training materials content
  - First workshop held 16-17 Sep 09 in St. Louis, MO
  - Second workshop held 18-19 Nov 09 in Arlington, VA
  - Third workshop held 17-19 Feb 10 in Arlington, VA
- ESOH in JCIDS BETA test 25-26 Jan 2011
  - Participants drawn primarily from workshop attendees
  - Provided critical course shaping inputs
- Course delivered to DAU on 15 Feb 2011

Phase 1 (Course Development): Course Overview

- Target audience: ESOH Subject Matter Experts (SMEs) supporting JCIDS document development

- Content:
  - Overview of the JCIDS process
  - Developing and prioritizing applicable and appropriate ESOH capability statements
  - Effective participation in the JCIDS document development process, i.e., how to be an effective advocate for incorporating ESOH capability statements

Phase 1 (Content Development): Course Content

- Overview of the JCIDS process - focused on what ESOH SMEs will need
  - Terminology
  - Top-level process description
  - Sequence and appropriate content of documents:

    Initial Capabilities Document (ICD)

    Capability Development Document (CDD)

    Capability Production Document (CPD)

- Developing and prioritizing applicable and appropriate ESOH capability statements
  - Identifying potential ESOH issues/concerns for a given solution/system
  - Tailoring for the given JCIDS document (ICD vs. CDD vs. CPD)

Phase 2 (Production of On-Line Course): Methodology

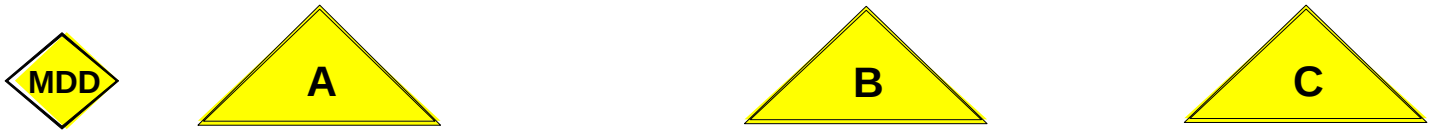
- Developed formal training course in Rapid Online Content Creation Environment (ROCCE)
- Passed configuration control to Instructional Designers
  - Incorporated comments from 25-26 Jan 2011 Stakeholder Beta Testing
  - Verify/Validate – screen by screen Beta testing
- Launched on DAU Learning Management System 15 Mar 2011. Total graduates as of March 23, 2012: **67**
- DAU Course Catalogue listing: CLR 030

Conclusion

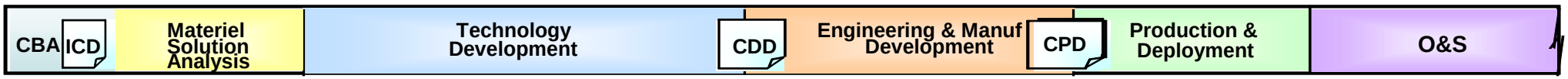
- DAU CLM CLR 030, ESOH in JCIDS, is designed to contribute to preservation of combat capability by reducing preventable losses without encumbering the JCIDS process

- CLR 030 will be updated in 2012 to incorporate changes to the JCIDS process based on the 19 JAN 2012 JCIDS Manual

This course is built…….



CLR 030 ESOH in Joint Capabilities & Integration Development System



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Background: ESOH in Systems Engineering Objective

- To be able to successfully influence system design development; need to successfully integrate ESOH considerations into the Systems Engineering process

- To be effective, need to integrate ESOH into Systems Engineering using the System Safety methodology in MIL-STD-882D
  - Enable program office ESOH staff to trace ESOH technical requirements
  - Enhance program office ESOH staff ability to successfully advocate for ESOH considerations in design trade off decisions
  - Link ESOH risk reduction to system life cycle cost, schedule, and performance requirements

Training Development

- Update effort funded by DSOC through the ATP TF
- ATP TF developing training by working with the DoD Acquisition ESOH IPT led by ODUSD(I&E) and SAF/AQRE
- Training Purpose: prepare ESOH SMEs to be effective participants in the Systems Engineering process
- Approach: Two Phases
  - Phase 1: Content Development (Aug 2010 - Sep 2011)
  - Phase 2: Production of On-Line Course (Oct 2011 – Dec 2011)

Training Development (cont)

- End State: a DAU Continuous Learning Module
- Generic DoD training, not Service-specific
- ESOH in Systems Engineering BETA tests 27-29 Jul 2011 and 13 Sep 2011
- Participants drawn primarily from DoD Acquisition ESOH IPT; all Services represented
  - Provided critical course shaping inputs
- Course delivered to DAU on 23 Sep 2011

Phase 1 (Content Development): Course Overview

- Target audience: ESOH Subject Matter Experts (SMEs) supporting acquisition programs

- Content:
  - Overview of the System Safety methodology
  - Developing and prioritizing applicable and appropriate ESOH criteria, constraints, and requirements
  - Effective participation in the Systems Engineering process, i.e., how to be an effective advocate for incorporating ESOH requirements (mitigations)

Phase 1 (Content Development): Course Content

- Overview of the Systems Engineering 882D process - focused on what ESOH SMEs will need
  - Terminology
  - Eight Elements of System Safety
  - Risk Assessment in System Safety
  - System Safety Order of Precedence
  - Typical Hazard Analyses
  - Using System Safety to Integrate ESOH Into Systems Engineering
  - Using System Safety to Integrate ESOH Into the Materiel Solution Analysis Phase
  - Using System Safety to Integrate ESOH Into the Technology Development Phase
  - Using System Safety to Integrate ESOH Into the Engineering and Manufacturing Development Phase
  - Using System Safety to Integrate ESOH Into the Production and Deployment Phase
  - Using System Safety to Integrate ESOH Into the Operations and Support Phase
  - Module Summary

Phase 2 (Production of On-Line Course): Methodology

- Developed formal training course in the Rapid Online Content Creation Environment (ROCCE)
- Passed configuration control to Instructional Designers
  - Incorporated comments from Stakeholder Beta Testing
  - Verify/Validate – screen by screen Beta testing
- Launched original CLM on DAU Learning Management System April 2005. Total graduates as of March 23, 2012: **3,433**
- DAU Course Catalogue listing: CLE 009

Conclusion

DAU CLM CLE 009, ESOH in Systems Engineering, is designed to help DoD protect personnel from accidental death, injury or occupational illness; defense systems, infrastructure, and property from accidental destruction, or damage while executing the mission requirements of National Security.

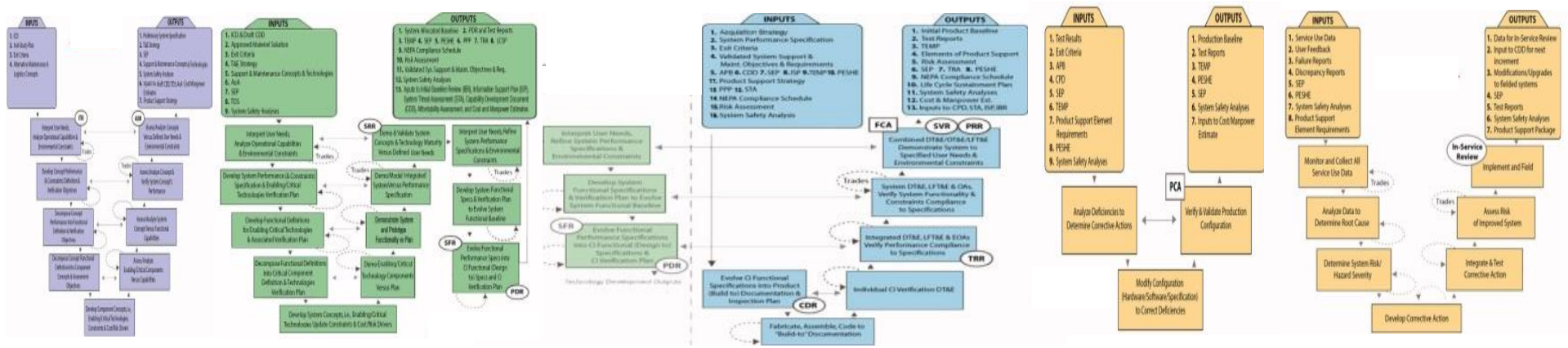
This course is updated……

MDD

A

B

C



CLE 009 ESOH in Systems Engineering

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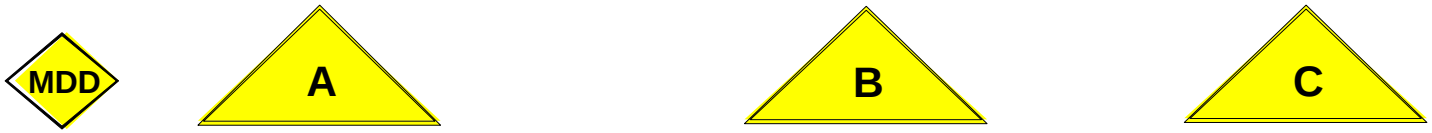
Integrating ESOH across the DAU Curricula

- Started: February 2006
- Overview: Funding to accelerate the work of the DoD Acquisition ESOH IPT to provide ESOH inputs to existing DAU courses
- Results to date: courses completed
  - ACQ 101 Fundamentals of Systems Acquisition
  - LOG 102 System Sustainment Management Fundamentals
  - SAM 201 Intermediate Software Acquisition Management
  - LOG 235 A & B Performance Based Logistics
  - CLM 035 ESOH Continuous Learning Module Updates
  - SYS 101 Fundamentals of Systems Engineering
  - SYS 202 Systems Engineering Management
  - ACQ 201A Intermediate Systems Acquisition
  - SYS 203 Intermediate Systems Planning, R&D, and Engineering
  - FE 201 Facilities Engineering
- DSOC Funding: $460,000 (FY06 and FY07)
- POC: ODUSD(I&E) David Asiello

Future Goal "Integrating ESOH into Acquisition": both courses merged



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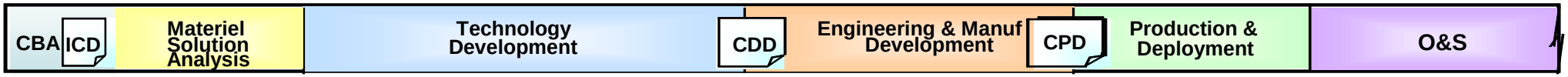

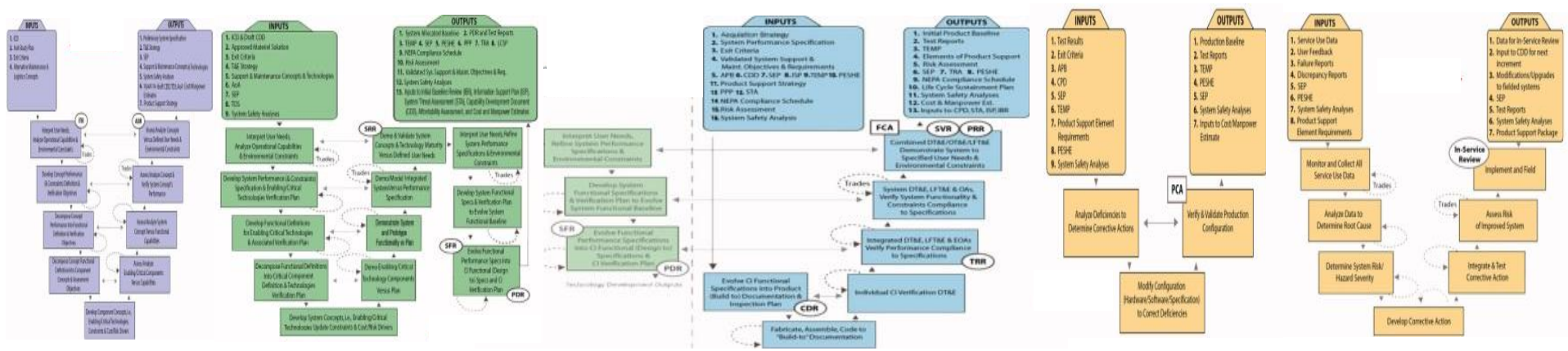

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Questions?

- The CLM 030 and CLE 009 work was funded through the Office of the Assistant Secretary of the Army Installations, Energy and Environment and conducted under contract W74V8H-04-D-0005 Task 0568. The views, opinions, and/or findings contained in this paper are those of the author(s) and should not be construed as an official Department of the Army position, policy, or decision unless so designated by other official documentation.